Electronic Version
Stylesheet Version v1.1.1

Claims

[c1] What is claimed is:

1.A method for analyzing defect inspection parameters, the method being utilized for analyzing a plurality of lots of products, each of the plurality of lots of products having a lot number, the plurality of lots of products being fabricated through a plurality of manufacturing equipment, at least one wafer in each of the plurality of lots of products being inspected according to at least one defect inspection item to generate at least one defect inspection parameter, the defect inspection item, the defect inspection parameter, and a process step correlated to the defect inspection item being stored in a database, the method comprising:

searching for the defect inspection parameters of the plurality of lots of products from the database;

classifying the plurality of lots of products into at least two groups according to the defect inspection parameters, the groups comprising a qualified group and a failed group;

searching for the process step correlated to the defect inspection item from the database;

searching for the manufacturing equipment through

which the qualified group has passed in the process step;

searching for the manufacturing equipment through which the failed group has passed in the process step; and

determining the manufacturing equipment through which the probability that the failed group has passed which is greater than that of the qualified group.

[c2] 2.The method of claim 1, wherein a commonality analysis means is utilized to determine the manufacturing equipment through which the probability that the failed group has passed which is greater than that of the qualified group.

[c3] 3.The method of claim 1, wherein the defect inspection parameter comprises a total count of defects, an adder count of defects, or a class count of defects.

[c4] 4.The method of claim 3 further comprising:

utilizing a histogram chart to represent the defect inspection parameters of the plurality of lots of products.

[c5] 5.The method of claim 1, wherein each wafer of the plurality of lots of products is tested according to a wafer test item correlated to the defect inspection item to generate a wafer test parameter, the wafer test item and the

wafer test parameter are stored in the database, the method further comprising:

determining if the defect inspection parameters of the plurality of lots of products are greater than a first standard value;

acquiring the lot numbers of products having defects if the defect inspection parameters of the plurality of lots of products are greater than the first standard value;

acquiring a plurality of layers on each wafer having defects in the lot of products, each layer being represented by a defect distribution map having a plurality of defect dies;

searching for the wafer test parameter distribution map for each wafer in the lot of products having defects, the wafer test parameter distribution map having a plurality of failed dies;

overlapping the defect distribution map of each layer with the wafer test parameter distribution map to acquire a number of overlapping dies, wherein the number of overlapping dies is equal to the overlapping number of the defect dies and the failed dies;

calculating a ratio of the number of overlapping dies to the number of the failed dies for each layer;

determining if the ratio is greater than or equal to a second standard value;

skipping layer which has ratio smaller than the second

standard value;
marking layer which has ratio greater than or equal to the second standard value as a defective layer; and
searching for products and their lotnumbers which contain at least one wafer comprising the defective layer.

[c6] 6.The method of claim 5 further comprising:
utilizing the statistical analysis means to generate a third standard value representing a kill ratio of the defective layer according to the number of defects in the defective layer.

[c7] 7.The method of claim 6 further comprising:
forecasting the yield for products arriving at the defective layer in subsequent processes according to the third standard value.

[c8] 8.The method of claim 5 further comprising:
determining if the wafer test parameters are stored in the database;
stopping searching if the wafer test parameters are not stored in the database; and
acquiring the wafer test parameter distribution map for each wafer in the lot of products having defects if the wafer test parameters are stored in the database.

[c9] 9.The method of claim 5, wherein the wafer test item is a

function test item.

[c10] 10.The method of claim 5, wherein the wafer testing inspection item is an I_{DDQ} test item.